

## CLAIMS

1. A compound capable of modulating the activity of a catalytic antibody, said compound being characterized in that it has a specific affinity for the catalytic site of said antibody, and in that it is non immunogenic.
- 5 2. A compound according to claim 1, characterized in that it is capable of stimulating the production of said catalytic antibody.
3. A compound according to claim 1 or claim 2, characterized in that it is selected from the group comprising:
- 10 4. a substrate of an enzyme or an analogue thereof, inhibitor or activator;
- a ligand binding itself to a receptor, especially a hormone, a drug, a medication or a fragment or an analogue thereof;
  - an antibiotic or an analogue thereof;
  - a viral, bacterial or parasitic peptide;
  - a recalcitrant and potentially toxic xenobiotic or a fragment thereof; or
  - 15 • an allergen analogue.
4. A compound according to any one of the preceding claims, characterized in that it comprises a non immunogenic peptide derived from an epitope of the Herpes virus.
5. A compound according to any one of claims 1 to 3, characterized in that it comprises a peptide derived from the cytokine TNF $\alpha$ , said peptide containing one of the
- 20 following amino acids sequences:  
LNRRA, IASVY or LFA.
6. A compound according to any one of claims 1 to 3, characterized in that it comprises a peptide derived from thyroglobulin.
7. A compound according to any one of claims 1 to 3, characterized in that it is a
- 25 peptide with an affinity for the active site of  $\beta$ -lactamase.

8. A compound according to claim 7, characterized in that it specifically inhibits  $\beta$ -lactamase activity.

9. A compound that can increase, *in vivo*, the physiological level of an enzymatic activity, characterized in that it comprises a non immunogenic substrate of a catalytic antibody having said enzymatic activity or one of its activator or inhibitor analogues, and in that it has a specific affinity for the catalytic site of said antibody.

10. A compound that can stimulate the hydrolysis of potentially toxic xenobiotics *in vivo* by specific catalytic antibodies, characterized in that it is non immunogenic, it comprises a recalcitrant and potentially toxic xenobiotic or a fragment thereof and in that it has a specific affinity for the catalytic site of said antibody.

11. A compound that can stimulate, *in vivo*, the degradation of drugs or medication by specific catalytic antibodies, characterized in that it is non immunogenic, in that it comprises a drug or a medication or a fragment or analogue thereof and in that it has a specific affinity for the catalytic site of said antibody.

12. A compound for preventing or diminishing an allergic reaction linked to an allergen, characterized in that it comprises a non immunogenic analogue of said allergen and in that it has a specific affinity for the catalytic site of said antibody.

13. Use of a compound according to one of claims 1 to 3 in preparing a pharmaceutical composition for the treatment or prevention of a disease linked to an enzymatic deficiency.

14. Use of a compound according to one of claims 1 to 3 in preparing a pharmaceutical composition for stimulating the hydrolysis of xenobiotics, drugs, medication or any other molecule that is potentially toxic to the organism.

15. Use of a compound according to one of claims 1 to 3 in preparing a pharmaceutical composition for preventing or desensitizing against allergic reactions.

16. A method for selecting a compound according to one of claims 1 to 3, comprising selecting and isolating a natural catalytic antibody or a catalytic antibody induced by repeated injection of an immunogenic molecule, characterized in that it further comprises the following steps:

- 5 a) synthesizing and/or extracting compounds derived from an immunogenic molecule recognized by the isolated catalytic antibody;
- b) if appropriate, carrying out a first screening using a biological and/or biochemical test for compounds interacting with the catalytic site of said catalytic antibody;
- 10 c) selecting non immunogenic compounds with a specific affinity for the catalytic site of the antibody from compounds synthesized or extracted in step a) or selected in step b), using a test that can measure said affinity.

17. A method according to claim 16, characterized in that the compounds derived from an immunogenic molecule are synthesized by combinatorial chemistry, by biosynthesis or by bioconversion.

15 18. A method according to claim 16, characterized in that the compounds are derived from an immunogenic peptide and are synthesized by mutagenesis of a DNA coding for said immunogenic peptide and by expression of mutated DNA in a host cell.

19. A method according to one of claims 16 to 18, characterized in that the compounds synthesized or extracted from an immunogenic molecule are peptides and are selected  
20 using a first screening of the catELISA test type, screening on a protein array or screening by measuring the surface plasmonic resonance (BIAcore).

20. A method according to one of claims 16 to 18, characterized in that the compounds synthesized or extracted from an immunogenic molecule are peptides and are selected using an initial screening of the phage display or double hybrid type.

25 21. A method according to one of claims 16 to 18, characterized in that a non immunogenic compound is selected in step c) by measuring the rate of the reaction

catalyzed by the catalytic antibody in the presence either of the compound to be tested, or of the immunogenic compound from which the test compound derives and selecting the compound in the presence of which the reaction rate is significantly higher than that measured in the presence of the immunogenic compound from which it derives.

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22. A pharmaceutical composition comprising, as the active principle, a compound according to one of claims 1 to 12 in combination with a pharmaceutically acceptable vehicle.

23. A pharmaceutical composition according to claim 22, characterized in that it further comprises a further active molecule the function of which is to modify or stimulate the biological activity of said compound or to diminish any secondary effects.

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